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6412 "THE SEED PLOT AN IMPORTANT FACTOR IN SEED POTATO CERTIFICATION"

H. C. Moore

At the Seed Potato Certification Conference held recently at Freehold, New Jersey, there was some discussion concerning the practicability of seed growers maintaining seed plots for the improvement of their potatoes. Since there was a variance of opinions concerning the most effective methods of handling the plot it might be of some benefit to describe briefly the methods used in Michigan.

Seed plots have been maintained by many of the Michigan certified seed growers since the beginning of the seed certification work in 1920. It was not, however, until the last three years that the maintaining of seed plots by certified seed growers has been included in the Michigan inspection and certification requirements.

Very little data is available to show the results that have been obtained by the seed plot method in the way of increased yields. There has been noted, however, a marked increase in the quality of potatoes by this method of selection. Some of the pioneers in this method of seed selection have reported that they have increased their yields by 25 bushels or more per acre aside from bettering the type of their potatoes. In the past six years there has been a very marked improvement in the general quality of Michigan certified seed. It is believed that the seed plot method so generally used has been a very important factor in this accomplishment.

Location of Seed Plot

For the best results it is important that the seed plot be isolated from other potato fields. There is a drawback, however, in that when the seed plot is placed in one corner of the farm it may be neglected in the matter of cultivation, spraying and roguing. As

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far as Michigan conditions are concerned it has been found more practical to place the seed plot at one side of the field listed for inspection. It is required, however, that a strip of ground nine to fifteen feet wide be left between the certified field and the seed plot. If the grower wishes, this space may be planted to corn. Unless some provisions are made for definitely locating the seed plot there is much likelihood that some growers will vary the position of the plot according to which part of the field appears the best during the growing season. It is then much more difficult for the inspector to effectively inspect and assist in roguing the plot.

In a general way the soil requirements for the seed plot are the same as those for the regular certified field. The plot is planted on soil that has not produced potatoes for four or five years. The soil must be well drained so as to minimize the possibilities of late blight or blackleg infection. The size of the seed plot in Michigan generally ranges from one-half acre to two acres. The area planted in the plot being approximately $\frac{1}{8}$ of the area of the main field.

Spraying and Roguing

Since the elimination of disease is one of the big factors in seed potato improvement, special emphasis is placed on the spraying and roguing of the seed plot. Certified seed growers watch their fields carefully for aphids and control them with Nicotine Sulphate solution in the regular Bordeaux mixture. Certified fields are sprayed at least five times during the growing season and the seed plots are generally sprayed six or eight times.

In the seed plot much stress is laid upon thorough roguing. The regulations require at least three roguings of the regular certified field and at least five in the seed plot. Special attention is given by the inspectors in the field meetings and demonstrations in instructing the growers in the identification of diseases and roguing methods. In the regular inspection work the inspector pays special attention to the seed plot; making a separate disease reading for it and aiding the grower in keeping it free from diseases and weak plants.

The first roguing of the seed plot is made when the plants are about six inches high. Others are made at frequent intervals throughout the growing season. Oftentimes many potato troubles develop late in the season. This is particularly true in the case of black leg and giant hill. A roguing, therefore, just before the first killing frost is essential since in some instances giant hill cannot be readily detected until after the first frost.

As far as possible the growers rogue just previous to spraying and as far as possible on days when the sunshine is not so intense and mosaic symptoms can be more easily detected. Special care is taken by them to remove the diseased and off type vines and tubers from the field.

Another cultural factor that is required in the certification work is that both the field listed for inspection and the seed plot, be kept free from weeds and grass. Not only is there a possibility of some weeds carrying the mosaic disease, which might be transmitted to the potatoes, but it is important for the morale of the work that the fields look the part of certified fields.

Methods of Selection

The seed plot is harvested usually before the main field so that ample time can be taken to make a careful selection.

The more general system is the mass hill selection method, though a few growers plant several bushels of seed by the tuber unit method. It is believed that there will be an increase in the number of growers who adopt the latter system.

The method most generally used is to dig the seed plot by hand, keeping the hills separate. After several rows are dug the grower observes each hill carefully and selects for his next year's seed plot those hills that average six or more tubers true to type and of uniform shape and size, and which have other desirable seed qualities.

The next selection is made to remove from the seed plot all hills showing tubers of abnormal growth or very low yields. The remainder of the hills are then saved to plant the main certified field the following season. This method is somewhat more practicable for the grower than staking the hills during the season that will later be saved for seed. A few growers, however, do follow

It is thought that the seed plot selection method aids materially this method in a limited way along with their seed plot work. in eliminating disease, particularly such troubles as spindle tuber and giant hill which usually manifest themselves in the tubers and oftentimes cannot be readily detected in the growing plants. The results so far secured in seed plot work are sufficiently satisfactory to warrant a continuance of this method of selection for the general improvement of Michigan certified seed.

SEED POTATO CERTIFICATION IN PRINCE EDWARD ISLAND

S. G. Peppin, District Inspector

The province of Prince Edward Island is situated in the lower stretches of the Gulf of St. Lawrence, just off the coast of New Brunswick and Nova Scotia. It was called by the Indians "Alegweit", cradled in the waves. It is now commonly known as the "Garden of the Gulf" being approximately 1,000,000 acres in area and practically all tillable. The soil, which is of a red sandstone

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loam, is naturally acid and well adapted to the growing of seed potatoes. Climatic conditions are favourable. Drouth and crop failure are almost unknown. Rainfall during the growing season is plentiful, the average for the past fifty years being 17 inches for the months of June, July and August. This ensures quite sufficient moisture from the time the crop is planted in late May or early June until vine growth is complete. The Northumberland Straits separate "The Island" from the Mainland. This body of water assists very materially in reducing the possibility of early frosts, thus enabling the potato vines to mature naturally.

. Today this province is known not only all along the Atlantic Seaboard States, but also in many other States and in all the provinces of Canada as the source of some of the best seed stock on the Continent. This has been brought about since 1918 when the first carload of certified seed to leave this province was shipped to southern Ontario. It was not until the following year, however, that our stock was introduced to the southern grower. At that time we were privileged to enter three samples of Green Mountains in the annual seed strain test on Long Island. Samples have been sent there each year since that date. Similarly small lots were sent to other States, particularly Virginia, New Jersey and Pennsylvania. These successive and successful samples served as a nucleus of carload lots and later of steamer loads. An idea of such rapid growth may be gathered from the fact that from one carload shipped out in 1918 the business increased in 1926 to over 600 carloads.

The work of inspection and certification is carried out by officials of the Dominion Department of Agriculture under the direction of the Dominion Botanist at Ottawa and is at present rendered free to all growers who make the necessary yearly application. The system and standards are uniform throughout the entire Dominion. In order to come within the regulations governing certification, the seed planted must be taken from stock which passed field inspection the previous year. Inspectors are thoroughly trained in every province at the experiment Station where the Plant Pathologi-

cal service is situated. At least two field inspections are made. If, on the first inspection, a field is found to have above the standard tolerance of disease, it is immediately rejected and no further inspection is made. This grower is then notified he must change his seed and that later on we will be in a position to recommend to him reliable seed stock. In this way we are able to keep field diseases down to a minimum. A grower having passed the first inspection tolerance or less is advised to thoroughly rogue out all diseased and suspicious plants. The growers whose fields pass the second inspection are still advised to continue to rogue out even the small percent of diseased plants which are allowed in the standard, pointing out that he in turn would be using the seed another year and would therefore have much less disease to contend with.

Tuber inspection is made in much the same way as field inspection. The grower is visited at digging time when the crop receives first inspection. If the stock does not come within a certain disease tolerance no certificate is granted. This applies particularly to late blight rot. On the other hand, if good seed stock can be graded from the bulk the grower is instructed as to which he should or should not put into the sacks for shipment. Inspection is again made while sacking or at car door or both. Certification tags are issued only where the stock passes final inspection. The grower is made responsible for the contents of any bag to which he attaches a tag. Each certification tag bears the seal of the inspection service printed on it. It also has the field certification number and the grower's number for identification purposes. Any lot of seed can thus be traced direct to its origin and in case of ultimate, fortunately rare complaints the grower is held responsible for any losses which may be directly traced to careless grading. Three colors of tag are issued, yellow for Irish Cobbler, green for Green Mountains and white for any other variety duly certified.

Farmers of the South who buy our seed stock should insist on receiving sacks which have the official certification tag attached. It is also a good practice to keep the tags for identification purposes later on. Common stock is sometimes purchased here by dealers and sold as uncertified. In nine cases out of ten this stock is not to be compared with certified. Occasionally it is possible to procure fairly good stock in this way but eventually if the practice is continued it will have a detrimental effect on the market as well as on the quality of the resulting crops.

The fact that shipments have increased from one carload to over 600 in eight years is sufficient evidence of the quality of the stock. Degeneration diseases, leaf roll, mosaic and spindle tuber are either absent in most of our fields or are reduced to a trace by careful roguing. New strains are not being introduced. We rely on our original strains, using the most approved methods to keep them as disease-free as possible.

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DR. H. W. WOLLENWEBER

Recently Dr. H. W. Wollenweber, Biologische Reichsanstalt, Berlin-Dahlem, Germany became a member of the Potato Association of America. He is an investigator of international repute. The addition of his name to our membership list is a great asset in many respects. Dr. Wollenweber has not only volunteered to contribute articles but also to abstract and translate German articles into English for the American Potato Journal. He has a good command of the English language and understands conditions in the United States and Canada quite well. These qualifications have been accomplished by being employed by the U. S. Dept. of Agriculture for nearly three years a few years ago, traveling and by keeping in touch with the research work in this country at long distance.

Dr. Wollenweber has the distinction of being the first German member of the Potato Association of America.

The American Potato Journal is now being distributed in Belgium, Canada, Cuba, England, Germany, Ireland, Orange Free State (Africa), Russia, Scotland and United States.

THE FOUNDATION OF ALL ORGANIZATIONS

Loyalty, Service, Sacrifice, and Vision, are the four foundational walls of all organizations. With these an organization develops enormous power and influence. With any of the above walls weak or missing, an organization will crumble and fall. No organization can accomplish the **greatest possible good** for the welfare of the industry which it represents unless **everyone** of its members are loyal, willing to render service, ready to offer sacrifice and have a vision beyond the veil of tomorrow.

The Potato Association of America with **every present member possessing the above qualifications** will become a **powerful organization** that will render an **unmeasurable service** for the welfare of the potato industry.

A member is loyal who pays his dues and boasts his association. But where does loyalty begin and end? A prophet of old answered this question very well by saying—"No man can serve two masters; he must either love the one and hate the other." This statement has stood the test thru the ages.

Service may be rendered in several ways. Visualize what would happen if every member would give his bit for the welfare of the Potato Association of America. Some are better qualified and also in better positions to serve than others. At least every member can secure new members and boost his organization.

Loyalty and service necessitate certain degrees of sacrifice. Again much depends upon the circumstances of the individual.

Vision is a great asset. Most everyone lacks foresight in some degree. If we only possessed as much vision as we have knowledge based on experience everyone would be more successful. Many of our members have demonstrated much enthusiasm and have cooperated to such an extent that the membership has increased over 1000 per cent in 4 years. When the writer four years ago spoke of 500 membership he was told that it was impossible. Then when this goal was reached he again was informed that the 1000 mark would never be reached. Today our mailing list is over 1400. Men with vision can see the possibility of a 50,000 membership. With such a large membership the financial and labor questions of our association would be solved and the **American Potato Journal could be made larger and better without an increase in membership dues.**

At present our association is going thru one of the most critical periods in its history. Until this year the secretary-treasurer had the use of a stenographer without a cent of cost to the association and the work could be done during the regular office hours without being questioned. The present membership is not large enough to warrant the hire of a stenographer and at the same time keep up the standard of our publication to say nothing about giving a little to those who do the executive work.

Such statements as—"The information given in the American Potato Journal is the most authoritative and concise I ever found"; "You are doing excellent work, keep it up", are sufficient to spur us onward. Now is the time for each member to take an inventory to learn whether she or he is scoring 100 per cent for the Potato Association of America.

OFFICE EQUIPMENT FUND

Last year the U. S. Dept. of Agriculture furnished the secretary-treasurer with a stenographer when needed, ample filing cabinet, etc. Due to a ruling last winter these privileges are not granted this year and the association mail has been requested not to be sent to the Department.

At the beginning of the year it was deemed essential to purchase an addressograph. It was bought with the idea that sufficient advertising space could be sold to take care of the extra expense and keep up the regular expenditures. Thus far this has not been accomplished. There is also a very urgent need for a filing case for letters, receipts, etc.

The addressograph including stand for the machine, cabinet for the addressograph plates and plates cost \$171.47. These are assets but is difficult to pay for them in one year. For this reason the editor has asked for donations.

To date the following have set the ball rolling—A Vermonter, \$20.00; L. M. Marble, Canton, Pa., \$10.00; Potash Importing Cor-

poration of America, New York City, \$10.00. This is a good start. If you wish to increase the efficiency of the secretary-treasurer, editor and business manager, who has never received a cent for his labor, make the sum large enough to purchase the essential equipment.

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QUOTATIONS FROM RECENT LETTERS

"I expect to send out some literature soon in an effort to obtain more members, as I believe that **every grower of certified seed should receive the American Potato Journal.**"—worth G. Couey, North Dakota Agrl. College.

"I consider the **Journal a mighty fine publication**, especially for one who is interested or concerned with the **production of certified seed.** I have recommended it to a number of inspectors in Washington."—F. E. Bailey, Yakima, Washington.

"We appreciate the American Potato Journal very much. It is **indispensable to a potato grower** who is interested in his work."—C. S. Gibson, Hunt, N. Y.

"I am enclosing my personal check to cover the dues of **21 new members** who are practically all certified seed potato growers. If they **derive half as much valuable information** from the Journal as I do they will not be sorry that they subscribed. I am hoping to have as **many more** subscriptions by the first of November."—K. W. Lauer, Harrisburg, Pa.

Editor's comment.—What Mr. Lauer is doing for the Pennsylvania growers others can accomplish the same. Now is the time for every member to secure new members. Every grower can make larger profits by reading the Journal. One dollar invested in the Journal will yield a dividend of several hundred per cent a year. It is a small investment in comparison even with cost of growing an acre of potatoes.

PROCEEDINGS OF THE 1925 ANNUAL MEETING

A limited number of the Proceedings of the 1925 meeting are for sale. It contains all the papers represented at the meeting and is more than worth the price of \$1.00 per copy. Order **now** before the supply becomes **exhausted.**

The Proceedings of the 1st, 3rd, 4th, 8th, 9th, are for sale at \$1.00 each; the 10th, \$1.30, and the 11th, \$1.00 per copy postpaid.

In behalf of the Association the editor wishes to thank publicly, E. V. Hardenburg for editing and mailing the 1925 Proceedings.

CROP AND MARKET NEWS

CROP ESTIMATE LOWERED; PRICES ADVANCE

(Contribution from the Fruit and Vegetable Division, Bureau of Agricultural Economics, U. S. Department of Agriculture)

The October crop estimate was reduced a little—737,000 bushels — from the September report, leaving the present forecast

at 350,821,000, or nearly 8 per cent more than last season but still about 46,000,000 bushels below the five-year average. Estimates for the 19 surplus-producing late potato States were reduced during September about 912,000 bushels, so that the present total for this group is 246,664,000, as against 235,239,000 last year,—an increase of approximately 5 per cent. Compared with the September estimate, Maine gained 1,700,000 bushels, New York 1,100,000, Idaho 800,000, and South Dakota and California 200,000 bushels each. Adverse weather conditions and other field troubles caused the following reductions in other leading States: Pennsylvania 1,300,000 bushels, Wisconsin 1,000,000, Michigan 700,000, Minnesota 400,000, Nebraska and Colorado together 450,000, and Washington 350,000 bushels. Maine, New York, the North Central group as a whole, Idaho and Washington have much heavier crops than in 1925, while marked decreases appear for Pennsylvania and Colorado.

Just as during October last season, prices this month have been tending upward in most markets. Chicago has been a little slower to respond, because of the heavy supplies of stock in poor condition, chiefly from Wisconsin, but even in that city good potatoes have advanced. Whether or not prices will reach the extremely high level of October 31, 1925, remains to be seen. Production is a little heavier than last year, and this fact may tend to keep values rather moderate. However, the population has increased approximately four millions during the past 12 months, so that the per capita of 3 bushels is nearly the same as a year ago.

Advances of 10-25 cents per 100 pounds during the week ended October 9 were quite common at shipping points and in city distributing centers. Northern Maine and the far West were especially strong. The Presque Isle market was excited; bulk Green Mountains sold on an f.o.b. basis slightly above \$2.00 per 100 pounds. The western New York season on Round Whites was late in starting, but the shipping-point market there opened around \$2.25-\$2.35, sacked per 100 pounds. North Central points closed higher at a wide range of \$1.80-\$2.30, Michigan stock touching the top mark and Wisconsin remaining lowest. At warehouses and loading platforms in Colorado, wagonload offerings were bringing \$1.50-\$1.80, and the cash-track price for cars in the San Luis Valley was almost \$2.00.

Shipments Approaching Peak

Total weekly shipments were approaching the annual peak and had reached 7,400 cars for the period October 3-9. This was 1,000 more than the preceding week and about 200 more than for the corresponding period last year. From the leading late-shipping States, however, movement lacked 7,000 cars of equaling last season's record to that date. Mid-season potatoes were not such a short crop this year, and shipments from several important late States were delayed instead of being rushed to market to fill the

gap, as in 1925. Maine and the North Central region account for most of the seasonal decrease, Minnesota alone running 3,000 cars behind. During the first full week of October, all the leading States except Wisconsin shipped considerably more cars than during the same week in 1925. Maine and Minnesota ranked first, with about 1,500 cars each. Colorado forwarded 750, North Dakota 670, Michigan 640, Idaho 600, Washington 340, and Wisconsin 380 cars. Imports reported from Canada were about 50 cars, most of which went to Boston.

Arrivals in city markets were increasing and were heavier than a year ago. Chicago carlot sales of northern Round Whites fluctuated considerably, reaching \$2.40 per 100 pounds about October 7, and then declining again to a range of \$1.90-\$2.10. But good Michigan Russet Rurals advanced to \$2.60 in Chicago, and all northern and western stock sold generally at \$2.50-\$2.90 in the Middle West. The market was strong for Red River Ohios. Idaho arrivals brought \$2.75-\$3.00 in Texas carlot markets, and the Chicago asking price for Colorado sacked Brown Beautys was \$2.65-\$2.75. Jobbing prices very similar to these prevailed throughout the East for Maine and eastern potatoes. Several kinds, chiefly Maine Cobbler and Long Island Green Mountains, reached \$3.00 and \$3.15 per 100 pounds. The Boston market on Maine stock, sacked locally, advanced to a level of \$2.50 by October 9.

British Columbia.—The certified seed potato business in this Province continues to make progress. There are a larger number of growers in the certified seed potato game this year than there were last and there is a corresponding increase in acreage under inspection.

The British Columbia Certified Seed-potato Growers' Association continues to function successfully and as a result our certified seed has found markets as far south as California and inquiries are being received from many other places.

During the months of June and July it was the privilege of the writer to pay a hurried visit to Prince Edward Island, Nova Scotia and New Brunswick, and also to the Aroostook County in the State of Maine and later to visit the States of Colorado and California.

The crop in the eastern Provinces at the time of my visit was not so far advanced as is usually the case at that time of year, and as a result, it was not possible to gain much information with respect to the virus diseases, but at the same time considerable data was collected with respect to the potato situation in the East.

It was particularly pleasing to study first hand the potato industry of Prince Edward Island and to learn of the success which had attended the efforts of the potato growers organization of that Province during the past few years.

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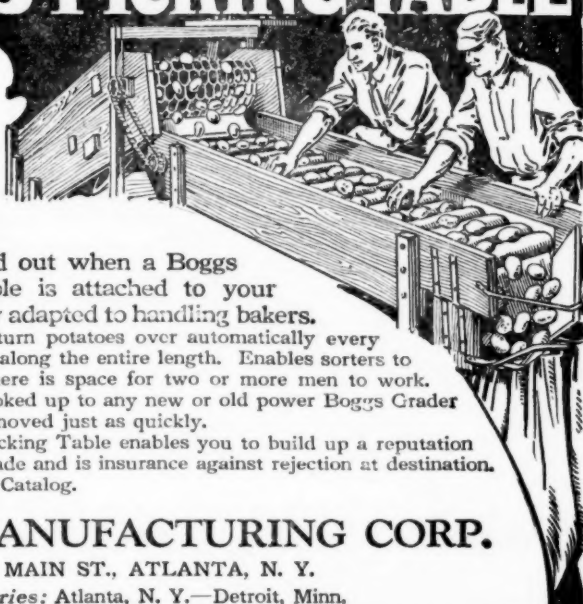
Most of my time in California was spent with Zuckerman Bros. who planted quite a large acreage with British Columbia Burbank certified seed potatoes last spring. In this connection it was encouraging to note that seed from this Province was giving satisfactory results.

With respect to the potato crop in British Columbia this year, I wish to say that on account of the rather dry season we have had that the crop will hardly be up to average. On the lower mainland, potatoes ripened early on the highlands, while in the lowlands the plants are green at the time of writing. The yield will reach approximately 4 to 5 tons per acre.

In the Victoria District, early potatoes yielded poorly, the yield being somewhat less than last year with a large percentage of small potatoes.

In Central British Columbia, potatoes on the average will yield much better than last year and the acreage is slightly increased.

In the Okanagan Valley, the acreage planted to potatoes is approximately 30 per cent greater than in 1925, but due to lack of



water for irrigation purposes and a very dry summer, the yield will be below the amount produced last year.

In the Ashcroft District, the potato crop is low and much second growth is present.—**C. Rice, Chief Agronomist, Sept. 23.**

Stockton, Calif.—Recently Zuckerman Bros. harvested an average yield per acre of 1,001 bushels on nine acres. The average yield per acre for the surveyed area of 13,687 acres was 972 bushels. These yields are reported to be the world's record dug under official supervision. The variety grown is known there as Pride of Wisconsin or White Rose, apparently these are synonymous names for the American Giant.—**Walter M. Peacock.**

Nebraska.—The most outstanding feature in the potato business in western Nebraska at the present time is the frost damage. On the morning of September 24, according to a thermographic record taken near Alliance, the temperature dropped to 8 degrees F. and remained below 32 degrees F. for 6 hours. The frost damage in Box Butte County is estimated at from 5 per cent to 30 per cent with probably an average of 20 per cent. The damage is probably less severe in the other counties. As the Triumph variety is now almost the exclusive variety less damage was done than if Early Ohios were still being grown, because the tubers of the latter are more shallow.

The Fusarium trouble has increased considerably in several localities, resulting in still further rejection among certification fields. The effect of recent low temperatures (during most of September) has resulted in the production of relatively good type tubers on spindle tuber vines, especially in the case of those tubers making most growth late. Consequently on some plants there will be one large tuber showing distinct symptoms, and a number of smaller tubers not showing any definite symptoms. This may mislead some of the growers to think that a mistake was made in diagnosis. This is probably the reason why many growers from this and other states are surprised to learn that their stocks contain so high a percentage of spindle tuber when readings are made in regions more favorable for the expression of symptoms.

The amount of seed certified will probably be less than last year. The buying of certified seed started unusually early and has continued strong. The prevailing prices have advanced from \$2.75 to the present price of \$4.00 per cwt. for prompt delivery. Most of the buying is being done by interests from Brownsville, Texas. Other sales have already been made to interests in Oklahoma, Alabama, Florida and Bermuda.

The Nebraska Triumph certified seed industry is one agricultural industry that is certainly not suffering from surplus production. There is probably call for two or three times as many cars of certified Nebraska Triumph seed potatoes, as are available. We consider this demand as evidence that our stand for **quality** has been worth while.—**H. O. Werner, Oct. 4.**

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Cumberland and Salem Counties, N. J.—The certified seed section of New Jersey is located in these two counties. There was never better prospects for high quality seed potatoes grown in southern New Jersey than this year. The vines have made large vigorous growth. The set is good and the tubers are already good size considering that most of the potatoes were planted in August. If frost holds off three more weeks (and there may not be a killing frost for four weeks) the yield will be large. The percentage of disease is very low and shows marked improvement from year to year in this respect. Several of the growers are planning larger tuber-unit seed plots next year. The demand is strong for the New Jersey certified seed and many of the growers have sold out before harvesting.—**Walter M. Peacock, Oct. 1.**

New York.—The acreage of certified seed in this state will be materially below normal this year; about 900 acres as compared with about 1200 for the preceding four years. The acreage in 1925 was about 1100. The biggest drop has been about 170 as compared with 264 last year and 385 for the last four years. Irish Cobbler shows a decrease over 1925 but an increase over the four year average. The acreage of Russet Rural is about normal. Present indications are that the yield per acre will be about as good as last year. Certified fields have been less affected by poor stands and tip-burn than table stock fields. The biggest factor of doubt is late blight rot. This cannot affect the acreage this year as fields will not be rejected on account of rot but it may have a marked effect on the yield and sort. At present it is not possible to tell whether there will be much rot but it seems likely.—**Karl H. Fernow, Sept. 24.**

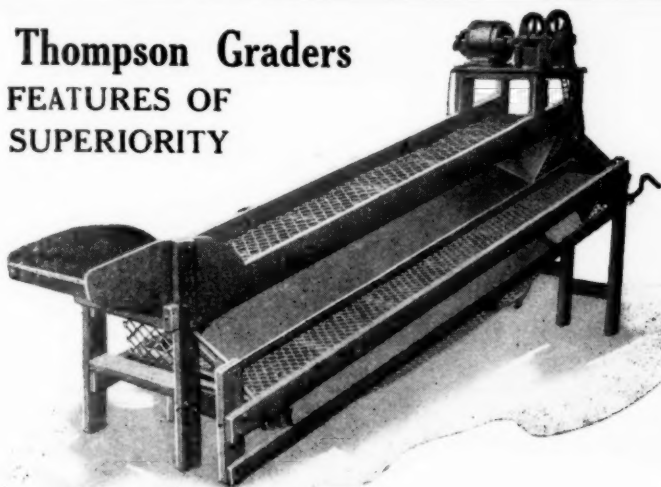
Ontario.—The acreage planted to potatoes this season in Ontario is somewhat below that of 1925. The yield also will likely be down somewhat, due to early blight and tipburn in some districts and late blight in others. There has been plenty of moisture for a good crop in all southern counties.

In the northern districts weather conditions were not particularly favourable for potatoes this year, cold backward weather until late June followed by a few weeks dry weather has resulted in lower yields compared with 1925. Continuous wet weather at this date is causing delay in harvesting the crop, many reports already received indicate that losses due to late blight and wet rot will be heavy.

Prices have been holding very firm all through the season averaging around \$1.25 to \$1.40 per bushel, the market may possibly soften somewhat as the main crop is being harvested but growers generally look for good prices this fall. Export demand is fair at present and if it continues may help prices somewhat but consideration should be given to the fine crop in Quebec and New Brunswick this year to balance up for the shortage which may occur, due to the export trade from some points in Ontario.

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The standing field crop competitions in potatoes are now being judged. Much interest is shown in the Kiwanis Boys' Club Competitions, of which there are several this year. In Carleton and Russell counties 75 boys each entered a plot of Certified Dooleys in competition. The local Kiwanis members show a personal interest in this competition, each member supplied a bag of seed and made a personal visit during the growing season to one of the competitors plots. The plots were judged while growing and the tubers will be judged later at the Ottawa Winter Fair.

A Field Day held recently at Alliston (Simcoe Co.) was pronounced a success by the growers there. Alliston ships out well over a hundred cars of potatoes each year, a more uniform grade preferably of one variety would help their trade. This district is having good success with the "Dooley" variety for their main crop potato.

The total number of fields entered for certification this year in Ontario was 440 of which 318 passed the two field inspections. Acreage passed was 579 out of 826 or 70 per cent. The 1926 field standard now permits of the presence of not more than 4 per cent combined diseases.—J. Tucker, District Inspector, Oct. 2.

Vermont.—The total acreage of fields certified in Vermont was 504. Of these 386½ were of the Green Mountain group, 116½ were Irish Cobblers and the odd acre was of a new variety, tentatively called "Stratton Mountain", which would probably classify in the Rural group. Since only about 600 acres were entered for certification, the percentage passed was unusually high.

Although the crop was late in getting started, owing to the coldness of the spring, plants have kept green later than usual. The set appears to be rather light, and a little below an average yield, for certified fields, is expected.

Only a very few fields had to be disqualified for late blight.—**Harold L. Bailey, Sept. 14.**

Wisconsin.—Potato harvesting season is now getting under way in Wisconsin. If the weather turns to clear and cool, the Wisconsin crop should be harvested in good condition this year. There is not enough blight in evidence at the present time to warrant serious concern over the question of late blight rot. Injury from rot and other conditions will of course depend largely upon the weather during the next four weeks.

Late season inspections made on the tuber index plots in the various Triumph producing centers of upper Wisconsin indicate that this work will fulfill expectations this year. Those in charge of the work expect an increased amount of index seed will be made available to Wisconsin growers. Tuber indexing is already showing results in a limited amount of seed available to the trade upon which the Station has an index record.

The harvesting of tuber index stock on the Spooner Branch Station in addition to the experimental fields will begin about October 1.—**J. G. Milward, Sept.**

MEETINGS AND SHOWS

Sixth Annual Kansas Potato Show, November 3, 4, and 5, Armory Building, Lawrence, Kansas.

Wisconsin organizations are now preparing for the 15th annual convention and state Potato Show to be held at Antigo, November 16-19. From fifteen to eighteen counties in the state are now selecting potatoes for competitive exhibits in the various classes.

The Show will also be open again this year to commercial exhibits.

Fifth Annual Pacific Northwest Potato Show and the **Sixth Annual Pacific Northwest Potato Growers' Conference**, November 16 to 19, Chamber of Commerce Building, Spokane, Washington.



Lessen the danger from early frost

MANY a potato grower has seen his promising crops wiped out or badly damaged by early frosts.

Can anything be done to lessen this damage? The lay of the land and use of frost-resistant varieties are, of course, important factors. But the plant food which the growing crops receive also plays an essential role.

Just as a sound, healthy, well-functioning body is best able to withstand disease or cold, so a healthy, vigorous plant is best prepared to resist damage from frost, insects and disease.

There was a striking demonstration of the value of high analysis fertilizers in lessening frost damage at Hollandale, Minnesota. On muck soil, potato growers who had used 600 lbs. per acre of an 0-9½-27½ fertilizer reported practically no damage from the first early frost, while unfertilized vines were half frozen down.

Potash, as part of a properly bal-

anced fertilizer, has a vital role in promoting sound, vigorous growth, thus lessening the injury from frost or disease.


Watch your crops and those in your neighborhood. If an early, unseasonable frost has occurred this year, note how the potatoes were affected and how the better and more intensively fertilized crops withstood injury.

On muck soils, 12 per cent to 32 per cent potash in a mixed fertilizer will help greatly in combatting early frost damage.

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MICHIGAN POTATO SHOWS

The first show to be held is the Western Michigan Potato Show, Greenville, Oct. 28-30.

Top-O'-Michigan Potato Show, Gaylord, November 3-5.

Thumb of Michigan Potato Show, Mayville, November 10-12.

Michigan State Potato Show, Michigan State College, East Lansing, during the first week in February, 1927.

British Columbia Potato, Bulb and Seed Show will be held November 24-27 in the city of Victoria, under the direction of the Department of Agriculture, working in cooperation with the Chamber of Commerce, the British Columbia Seed Potato Growers' Association, and the Victoria Cottage Gardeners' Association. Since its inception five years ago, this annual show has become more popular each year.

REVIEW OF RECENT LITERATURE

ASKEGAARD, E. D.—Treating of carloads of seed potatoes at the source.—*Potato Assoc. Amer. Proc.*, 12 (1925), pp. 98, 99.

The successful treatment of carload lots of seed potatoes at the source by the hot formaldehyde method is described briefly.—**H. M. Steece.**

FOLSOM, DONALD, E. S. SCHULTZ, AND REINER BONDE.—Potato degeneration diseases: natural spread and effect upon yield.—*Maine Agri. Exp. Sta. Bul.* 331. pp. 57-112. 1926.

Replicated plots showed significant effects of certain degeneration diseases in 1924. Spindle-tuber reduced the yield of Irish Cobblers and Green Mountains to 20 per cent below that of healthy parts of the same strains. In Green Mountains, mild mosaic reduced the yield 8 to 15 per cent. Rugose mosaic reduced it 50 per cent. Greater reductions resulted in 1925. Each 10 per cent reduction amounted to about 40 bushels an acre. In 1925, giant-hill stock yielded slightly more than healthy, having had a longer growing period due to greater frost resistance. The spread of these diseases was tested in 36 fields in 1923, when they occasionally infected a third of the plants in the first five healthy rows next to diseased rows, or spread across for 50 rows. The spread from diseased to healthy hills in the same field aggregates more than the spread from one field to another. Spread was decreased by isolation and roguing. Spindle-tuber, leafroll, and rugose mosaic are easier to reduce or eliminate than mild mosaic. Incompleteness of infection of the tuber presents a difficulty in roguing. There is no important correlation between tuber weight and disease percentage. Contact between hills increases the spread of disease but

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is not necessary for its spread. Spread was more marked in the southwestern part of the State than in the northeastern part, in the absence of control measures. Disease through unequal spread in different separated parts of a strain, may bring about considerable difference in the relative value of these parts. Such differences can be measured more reliably by advance testing in a warmer environment than by forecasting from field observations.—Donald Folsom.

FUNK, F. J. AND J. H. GOODING.—Some experiments on the control of potato scab (*Actinomyces scabies*) with Semesan and other organic mercury compounds.—*Potato Assoc. Amer. Proc.*, 12 (1925), pp. 109-113, figs. 2.

The results of experiments under the auspices of E. I. du Pont de Nemours and Co., Inc., were summarized as follows:

"Various Semesan products may be applied to either cut or uncut seed potatoes without injury and will provide as good control of scab as will mercuric chloride, $\frac{1}{2}$ hour, or hot formaldehyde. These compounds tend to increase rather than decrease total yield. The results already reported on the control of seed borne scab with Semesan 15 are confirmed. A new method of applying Semesan as a dip or sprinkle, which is remarkable for its rapidity and simplicity, was tested and found to be as effective as the more cumbersome treatments."—H. M. Steece.

29.6 MARBLE, L. M., et al.—Potato storage investigations, 1924-1925.—Canton, Pa.: Marble Lab., (1926), pp. 174, pls. 16, figs. 36.

This report of the Committee on Storage Investigations of the State of Pennsylvania includes an account of the investigational work carried on at the Marble Laboratory, Canton, Pa., 1924-1925, by L. M. Marble; a report of the condition of potatoes in experimental storage in the Marble Laboratory, by W. A. McCubbin; an account of field tests of stored potatoes, by W. A. McCubbin and R. E. Hartman; and observations on potato storage conditions at the Coudersport, Pa., warehouse, 1924-1925, by W. A. McCubbin. The conclusions from the investigational work at the Marble Laboratory are as follows:

"Fundamentally, the proper practice for delaying germination until the end of the storage term resolves itself into storage under conditions favorable for the prompt removal of the products of respiration, including the heat of respiration. The temperature of the storage is the controlling factor in determining the storage conditions necessary for delaying germination. When the storage temperature is low, from 30 to 35 degrees F. the heat of respiration is so slight that bin storage may be employed with satisfactory results. When, however, a storage temperature of 38-40 degrees is employed, bin storage is apt to result in early germination.

"Ventilation is not effective in delaying germination in deep bin storage. With a storage temperature of 38-40 degrees storage in small packages with opportunity for the escape of the products of respiration on all sides of the package is desirable. Crates or bags piled with ample dunnage comply with these requirements. Ventilation is the most effective agency for removing the products of respiration. It should be employed in sufficient amount to do this promptly and completely. When the storage temperature is 38-40 degrees, crate or bag storage with ventilation supplies the proper holding conditions for delaying germination until the end of the storage term."—H. M. Steece.

MARTIN, W. H.—Disinfecting seed potatoes by the dry method.—*Potato Assoc. Amer. Proc.*, 12 (1925), pp. 99-109.

Investigations at the New Jersey Experiment Station revealed that the use of organic mercury compounds in either liquid or dust form did not hasten germination of Irish Cobbler tubers or result in increased vine growth as compared with untreated tubers or those disinfected for 1½ hours in mercuric chloride 1:1000. All of the treatments resulted in a decrease in the number of tubers larger than 0.5 in. in diameter as compared with plats planted with untreated tubers. Although the yield data seemed inconclusive, the results did not indicate a decreased yield following the use of the chlorophenol mercury compounds in the dust form or in the liquid form except where a too concentrated solution was used. The nitrophenol mercury compounds used in the dry form resulted

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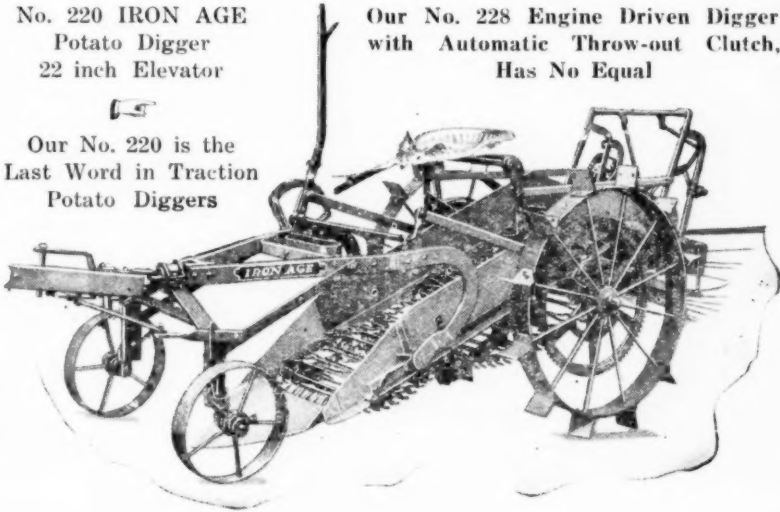
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in slight yield decreases, but since they seemed more efficient in scab control than the chlorophenol mercury compounds they were held worthy of further investigations. Disinfecting seed potatoes in 0.25 per cent solutions of the organic mercury compounds for $1\frac{1}{2}$ hours gave as efficient control of scab as the same length of treatment in mercuric chloride 1:1000.

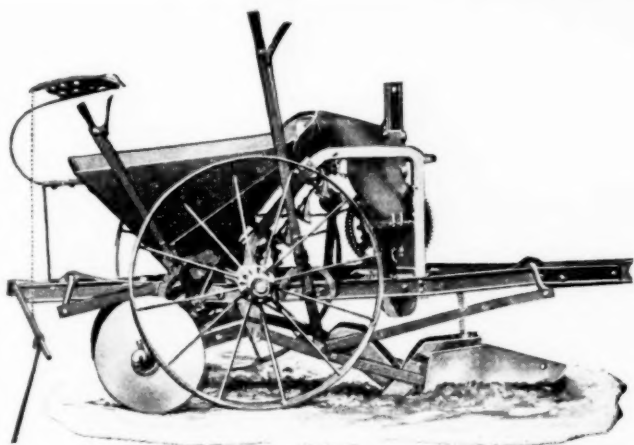
The organic mercury compounds in the dry form were as effective in scab control as any of the liquid treatments. Two ounces of organic mercury dust (Semesan 15) per bushel applied to the uncut tuber controlled scab as well as 3 oz., whereas the 2-oz. treatment after cutting was less effective than 3 oz. In three tests where a direct comparison was made, organic mercury dust (Semesan 15) at the rate of 3 oz. per bushel on the cut seed gave a slightly better control of scab than the $1\frac{1}{2}$ hour treatment in mercuric chloride 1:1000.—H. M. Steece.

MARTIN, W. H., W. M. PEACOCK, AND P. M. LOMBARD.—Northern versus southern grown seed.—*Potato Assoc. Amer. Proc.*, 12 (1925), pp. 23-32.

Comparative tests of Maine-grown Irish Cobblers and Green Mountain potatoes with seed of the same strain grown 1, 2, and 3 years in New Jersey under the auspices of the New Jersey Experiment Station were conducted in cooperation with the U. S. Department of Agriculture in Maine, Connecticut, and New Jersey. The results of the comparisons indicated that when potatoes are planted in New Jersey as a late crop and the necessary measures adopted for the elimination and control of diseases the potatoes produced are as vigorous for seed purposes as those grown in the Northern States. Seed potatoes grown year after year as a late crop in New Jersey will apparently yield as well if not slightly better than the same strain grown in Maine.—H. M. Steece.

MELHUS, I. E.—The hot formaldehyde dip of seed potatoes.—*Potato Assoc. Amer. Proc.*, 12 (1925), pp. 89-95.

Experiments in the laboratory and field at the Iowa Experiment Station leading to the development of the hot formaldehyde dip for seed potatoes are reviewed, and the "machinization" of potato seed treatment is discussed.—H. M. Steece.



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